

# ◆ G-4 NEWS ◆

Volume 1 Issue 1

The Newsletter for Oxygen Compatibility Practitioners

Spring 1994

## Newsletter Experiment to Promote O<sub>2</sub> Compatibility (and G-4)

If you are a practitioner of oxygen compatibility, how do you track important developments? If you are not one of the 80-odd members of ASTM G-4, you can't read the Committee minutes or even occasional items we seed in *Standardization News*, the ASTM organ. And even members wait several months before they receive these items.

Yet we know you are out there. Some of you are among the several hundred people who have attended G-4 symposia. Some are among the 600 or so who have attended our *Controlling Fire Hazards in Oxygen-Handling Systems* Course. Some are at producers or vendors or users and are on the front line—where the action is.

This question has prompted G-4's Executive Committee to conduct an experiment with this newsletter. It has several purposes. First, it demonstrates there is news to be told. Second, that we can herald the news and deliver it in a timely and practical fashion. Third, and maybe most important, it surveys whether there is a demand for a newsletter.

At times, it appears we are deluged with newsletters, but there is always room for another one,...if it is good. That's why we've taken the liberty to send you this trial copy. We do not plan to charge for this service. It is a logical extension of G-4's public-service mission. But we do need to know whether there are people who want a network on this topic.

Admittedly, some issues might be dull. This issue there is news, next issue maybe not. But, in this field "no news is

This is to measure interest for a free Newsletter.

Would you like to receive more?

***"it appears we are deluged with newsletters, but there is room for another one,... if it is good"***

good news," and we think the good would outweigh the dull. There is value in a channel that can reach those who want to be connected.

But this newsletter is not a fact. It is an experiment. The Exec Committee will appraise reaction to this experiment at its Fall 1994 meeting. To proceed, we need to know you want the service and

are in significant numbers. If we proceed, we will certainly focus on G-4, but this issue demonstrates that there is also a world outside of G-4. And we are open to it and to suggestions.

Have we caught your eye and interest? If so, sign up! Send us the coupon on page 3. Your thoughts are welcome, too. **G4N**

## Progress at Montreal: ....OUTSTANDING!

The Committee pursued an ambitious current agenda at Montreal. Ballots, new standards and projects galore were reviewed. Oh yes, and a trial of this newsletter was begun.

The Montreal meeting was another in which the meeting time for G-4 was compressed to allow time for the offering of an STT course and a meeting of the CFC Solvent-Replacement Task Force. Although it places great pressure on the Committee to use every minute wisely, these abbreviated sessions have been very productive and may even have improved attendance, because people are able to arrive later and leave earlier. Indeed, the Committee has been attempting to cluster the popular subcommittee meetings around a time "kernel" so that subcommittees which have little interest are at the ends of the meetings to facilitate these late "ins" and early "outs."

So just what happened?

The **G4.01 Test Methods** Subcommittee successfully balloted its own fire limit standard which incorporates the basic Oxygen Index Test (D 2863). In this way G-4 will have control over the timing of revisions and not have to worry about changes D 20 might make to D 2863. Pending Society ballot, expect it to publish this summer.

(See *Progress* on page 2)

### Inside This Issue

Newsletter to Promote O <sub>2</sub> Compatibility and G-4	1
Progress at Montreal	1
CGA and NFPA Revise O <sub>2</sub> Publications	2
Cleaning Questions Abound	3
CGA Publishes Pamphlet on Structured Packing	3

## Progress at Montreal

(Continued from page 1)

There has been resistance to G4.01 taking over the LOX Mechanical Impact Test (D 2512). D 2512 may become abandoned and available this year. If not, a rewrite may become a potential tactic [or converting G 86 to include an open atmospheric pressure option]. Ditto to a possible rewrite of D 4809 on Heat of Combustion. A routine ballot of G 86 has been dragging on.

The Committee's procedure for aging specimens prior to Compatibility tests has published as G 114-93 and is in the 1993 Part 14.02 of the *Book of Standards*.

The Promoted Combustion test passed Main Committee ballot. A few editorial comments were included. It should publish this summer.

The CFC Replacement Task Force ran round-robin tests of its Cleaning Effectiveness standard. They revealed flaws that suggest more than complete removal occurs. The procedure is being redesigned. Nonetheless, the standard passed ballot and is available as G 121-93. Readers should be careful about use of this standard in its present form.

The Task force has also finished ballot of a Soxhlet extraction method for evaluating cleaning effectiveness and it is available as G 120-93.

A test method using ultrasonics for the analysis of organics in water is in preparation so that high-purity water may be used as an extraction solvent during cleanliness testing.

The Stennis Space Center O-ring tester has experienced its first apparent reaction in oxygen on Buna-N O-rings. Viton has been resistant to reaction so far.

The first data reduction for round-robin tests of G 72 were reported: they all ranked polymers identically, but the scatter was large in some cases.

The **G4.02 Practices** Subcommittee has created an "abstract" standard that introduces the oxygen hazard and risk and the body of G-4 work. Such

standards are encouraged by ASTM. Under Ulrich Koch's leadership, a subcommittee ballot was successful. This summer it will ballot in the main committee.

Bill Royals brought a plan for revision of G 93 (our cleaning standard) to the meeting and reviewed it. It proposes methods to specify cleanliness, a needed feature absent to date. Royals felt able to produce a first major revision to ballot in time for the Fall meeting.

The CFC Replacement Task Force balloted a guide for selection of cleaning agents but it will need further work.

The **G4.05 Education** Subcommittee reported that an STT Course was held at Montreal earlier in the week. The course maintains its popularity with 17 students in attendance from a wide cross-section of interests. The Committee has previously agreed to target a new third-edition of the coursebook for next year owing in large part to the dating that recent progress will yield to the second-edition.

The American Bar Association has

requested a shortened course be taught for its members. This may lead to a series of offerings to the ABA.

Progress toward an advanced STT course has been slow. A plan endorsed by the Committee was proposed by Haynes Haselmaier to examine incident case studies. It has been hard to obtain documented material. Haynes is joined by Rick Paciej and a final push will be made this summer to garner data.

Paul Klein explained and demonstrated the CBBS available for Committee use. It has been available for several years, but few people take advantage of it, even though it contains a substantial bibliography with abstracts that were provided by Ken McIlroy. Paul provided more detail and software copies to those interested. The Committee is expediting the insertion of meeting minutes as an enticement to CBBS use.

Many "value added" computer files were proposed, and they were adopted for development by G4.05. More on these next time. **G4N**

## CGA: Revision of Pamphlet G-4.4 NFPA: Revision of Publication 53

**B**oth the Compressed Gas Association (CGA) and National Fire Prevention Association (NFPA) have made major revisions to one of their oxygen-related publications.

The **CGA** has released a new Pamphlet *G-4.4* in January 94. The new pamphlet is expected to retain virtually all of the information as the past pamphlets but also to liberalize the criteria for the use of stainless steels. Existing systems which met the old criteria are likely to meet the new. However, at pressures up to a couple-hundred psi, stainless steels are now listed for use in valves and other components for which its use was previously discouraged. Lead times for obtaining valves should decrease and cost savings should result.

The new pamphlet can be ordered from the CGA at (703) 413-4341. The single copy price will be \$16.00 (member) and \$24.00 (nonmember).

The **NFPA** is issuing a massively revised (about 40% new) publication 53 (no longer called *53M*). Additional incidents and data on metals flammability are now included. Several members of G-4 participate on the 53 Committee.

The new 53-94 can be ordered from NFPA at (800) 344-3555. The single copy price is \$19.50 (nonmembers) and \$17.50 (members) plus a \$4.15 handling charge. The release date is late March 1994. **G4N**

## Cleaning Questions Abound

**T**hose who have been relying on 1,1,1-trichloroethane and CFC's to clean for oxygen service are scrambling to find a "good" (preferably drop-in) replacement. Some who have experience with nonsolvent cleaners have shifted to them, but for many, the loss of these solvents is a serious handicap. G-4 has established a Task Force to address this issue, because these solvents have been critical to the achievement of safe oxygen systems.

There is no similar effort ongoing in CGA (apparently they have deferred to G-4). However, the European Industrial Gas Association does have an active Committee. Several European countries have led the drive to ban use of these solvents. At present the G-4 Task Force is well into a series of standards.

***"At present, practitioners need to be extremely cautious about the cleanliness of their systems"***

Numerous vendors unfamiliar with the demands of oxygen systems have been promoting alternatives. G-4 members have heard of instances where cleaning agents were substituted, where the new methods were not adequate or even left flammable residues. At present, practitioners need to be extremely cautious about the cleanliness of their systems.

The G-4 approach has been to assist in the mechanics of identifying acceptable alternatives. The Task Force has written a standard to specify a method to contaminate specimens, standards to measure how clean any alternative materials leave these specimens, and a guide to identify the issues one should consider in choosing an alternative. The issues include not only cleaning effectiveness, residue, and residue flammability. It also includes such things as toxicity, carcinogenicity, environmental impact, disposal problems, and more.

To date no one has named a cleaning agent that offers all the advantages of the offending solvents. Some are pursuing water-based surfactants. The drying and corrosion effects of these are troublesome to most. Some are even trying flammable or combustible solvents. Although fuel solvents were used in the past and are practical, the administrative controls necessary to ensure that they are absolutely removed from a system are daunting, and there is no margin for error.

Some people are shifting to chlorinated solvents that are not being banned, preferring to cope with the toxicity issues rather than alter their basic cleaning techniques.

A symposium in fall of 1992 led to eleven papers which have been published as *ASTM STP 1181, Alternatives to Chlorofluorocarbon Fluids in the Cleaning of Oxygen and Aerospace Systems and Components* [\$43.00 (nonmembers), \$39.00 (members) from ASTM Customer Service at (215) 299-5585]. These papers represent a starting point, but there is a long way to go before practitioners can enjoy the confidence that the equipment they clean and buy in clean condition meets the levels that were routinely achieved in the past. **G4N**

## CGA Publishes Pamphlet on Structured Packing for O<sub>2</sub> Distillation

**T**he Compressed Gas Association has published a pamphlet on aluminum structured packing for use in liquid oxygen distillation.

This application is unique in that it involves thin metallic components with huge surface area, the mechanical properties of the packing are demanding. The pamphlet is the product of a Task Force that studied the application for several years, and supported their decisions with substantial experimental work, some of which has been reported in *STPs 1111* and *1197*.

The Pamphlet addresses material selection and also proposes cleanliness needs for these systems.

The Pamphlet is being published under the designation *G-4.8 Safe Use of Aluminum Structured Packing for Oxygen Distillation*. It can be ordered from the CGA by calling (703) 413-4341. Single copy price is \$16.00 (CGA member), \$24.00 (nonmember). It will be available in early 1994. **G4N**

## I want G-4 News!

Your name will be listed in our publicly available database of oxygen compatibility enthusiasts, please check **all** boxes that apply to you.



Name \_\_\_\_\_  
Company \_\_\_\_\_  
Address \_\_\_\_\_  
\_\_\_\_\_  
Phone \_\_\_\_\_  
FAX \_\_\_\_\_

- ☐ G-4 Member  
☐ G-4 Symposium Attendee  
☐ G-4 STT Course Student  
☐ Consultant  
☐ Commercial Testing Source  
☐ General Interest in Subject

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Non-Profit Org.

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## Inside This Issue

- *New Items for CGA, NFPA*
- *Spring 94 G-4 Progress*
- *Replacing CFCs*

## G-4 Events and Housekeeping

Regular meetings of the Committee G-4 have been scheduled as follows:

Nov 8-10, 1994.....Stennis SC, MS  
Mar 14-15, 1995.....Denver, CO  
Nov 14-16, 1995.....Norfolk, VA  
Mar 19-21, 1996.....Orlando FL  
Contact Steve Mawn (215) 299-5521 for details or membership data. ASTM Membership is \$50 per year.

The next G-4 Symposium is on:  
Mar 16-17, 1995.....Denver, CO  
For a Call for Papers or Program, call Steve Mawn (215) 299-5521.

The course: *Controlling Fire Hazards in Oxygen Handling Systems* is on:  
Nov 7-8, 1994.....Stennis SC, MS  
Mar 13-14, 1995.....Denver CO  
Nov 13-14, 1995.....Norfolk, VA  
Mar 18-19 1996.....Orlando FL  
Contact Scott Murphy (215) 299-5516 for information or brochure. Cost is \$675.00 (including text). Can be offered at your site for a negotiated price.

The two-volume course text: *Fire Hazards in Oxygen Systems* may be ordered from Scott Murphy (215) 299-5516. Price is \$195.

The G-4 Videotape *Oxygen Safety* PCN 12-700880-31 may be ordered from ASTM Customer Service at (215) 299-5585. Price \$67.

Recent G-4 Standards actions/revisions:  
G 94-93 "Evaluating Metals..."  
G 114-93 "Accelerated aging...."  
G 120-93 "Soxhlet Extraction..."  
G121-93 "Preparing Coupons...."  
G 122-94 "Evaluating Cleaning Effectiveness...."

All G-4 standards appear in part 14.02 of the Book of Standards or may be ordered individually from ASTM Customer Service (215) 299-5585. Typical standard prices range \$10-30.

## Details:

**T**his newsletter is a product of ASTM Committee G-4. The editorial staff is the G-4 Main- and Sub-Committee Officers and ASTM Staff:

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